TOBIAS RITTER, PH.D.

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APPOINTMENTS

Director, Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, Germany

Honorary Professor, RWTH Aachen University, Aachen, Germany

Chemist, Department of Radiology, Massachusetts General Hospital

Founder SciFluor Life Sciences, Cambridge, Massachusetts

EDUCATION

2004	**Ph.D.** Organic Chemistry, ETH Zurich, Switzerland
1999	**M.S.** Technical University of Braunschweig, Germany

RESEARCH INTERESTS

Synthetic organic and organometallic chemistry; development of new synthetic methods based on transition metal catalysis; synthesis of biologically active natural and unnatural products, molecular imaging

EXPERIENCE

Max-Planck-Institut für Kohlenforschung | Mülheim an der Ruhr, Germany

2015–present	Director, Department of Organic Synthesis

RWTH Aachen university | Aachen, Germany

2017–present	Honorary Professor of Chemistry and Chemical Biology

Harvard University | Cambridge, MA, USA

2015–2017	Visiting Professor of Chemistry and Chemical Biology
2012–2015	Professor of Chemistry and Chemical Biology
2010–2012	Associate Professor of Chemistry and Chemical Biology
2006–2010	Assistant Professor of Chemistry and Chemical Biology

Massachusetts General Hospital | Boston, MA, USA

2014–present Chemist, Radiology
2012–2014 Associate Chemist, Radiology
2010–2012 Assistant Chemist, Radiology

California Institute of Technology | Pasadena, CA, USA

2004–2006 Post-Doctoral Fellow; Advisor: Prof. Robert H. Grubbs

Swiss Federal Institute of Technology | ETH Zürich, Switzerland

1999–2004 Ph.D. Thesis; Advisor: Prof. Erick M. Carreira

Stanford University | Stanford, CA, USA

1998–1999 Master Thesis; Advisor: Prof. Barry M. Trost

Swiss Federal Institute of Technology | Lausanne, Switzerland | 1997–1998

University of Bordeaux | Bordeaux, France | 1997–1997

Technical University of Braunschweig | Braunschweig, Germany | 1995–1997

AWARDS

2013 RSC Fluorine Chemistry Prize, 2013 | Klung-Wilhelmy-Weberbank Preis, Berlin, Germany, 2012 | Popular Science Brilliant 10 Award, 2011 | Camille Dreyfus Teacher Scholar Award, 2011 | BASF Catalysis Award, 2011 | Roslyn Abramson Award for Excellence in Teaching Undergraduates, 2010 | AstraZeneca Excellence in Science Award, 2010 | Amgen Young Investigator Award, 2010 | Alfred P. Sloan Research Fellowship, 2010 | NSF Career Award, 2010–2015 | Air Force Young Investigator Award, 2010–2013 | Eli Lilly Grantee Award, 2010–2012 | Bayer Early Excellence in Science Award, 2009 | Massachusetts Life Science Center Young Investigator Award, 2009–2011 | Smith Family Award for Excellence in Biomedical Research, 2008–2011 | Milton Fund Award, Harvard Medical School, 2008 | Thieme Chemistry Journals Award, 2007 | Postdoctoral Fellowship (DAAD), 2004–2006 | Kekulé-Scholarship of the Fond der Chemischen Industrie e.V., 2000–2002 | Winterfeld Award - Towards the Total Synthesis of Teretifolione B, 2000 | Fellowship of the Konrad-Adenauer-Foundation, 1998–1999 | Scholarship of the Swiss National Science Foundation, 1997–1998 | Scholarship of the European Union, 1997 | Scholarship of the Konrad-Adenauer-Foundation, 1996–1999.

PUBLICATIONS

79. F. Ye, J. Chen, T. Ritter „Rh-catalyzed anti-Markovnikov hydrocyanation of terminal alkynes" *J. Am. Chem. Soc.* **2017**, *139*, asap.

78. H. Lee, J. Boergel, T. Ritter „Carbon–fluorine reductive elimination from nickel(III)" *Angew. Chem., Int. Ed.* **2017**, *56*, asap.

77. M. G. Campbell, J. Mercier, C. Genicot, V. Gouverneur, J. M. Hooker, T. Ritter "Bridging the Gaps in ^{18}F PET Tracer Development" *Nat. Chem.* **2017**, *9*, 1–3.

76. N. W. Goldberg, X. Shen, J. Li, T. Ritter "AlkylFluor: Deoxyfluorination of Alcohols" *Org. Lett.* **2016**, *18*, 6102–6104.

75. C. N. Neumann, T. Ritter "U can fluorinate unactivated bonds" *Nat. Chem.* **2016**, *8*, 882–883.

74. H. Lee, M. G. Campbell, R. Hernández Sánchez, J. Börgel, J. Raynaud, S. E. Parker, T. Ritter "Mechanistic Insight Into High-Spin Iron(I)-Catalyzed Butadiene Dimerization" *Organometallics* **2016**, *35*, 2923–2929.

73. H. Shi, A. Braun, L. Wang, S. H. Liang, N. Vasdev, T. Ritter "Synthesis of ^{18}F-Difluoromethylarenes from Aryl (Pseudo) Halides" *Angew. Chem. Int. Ed.* **2016**, *55*, 10786–10790.

72. C. N. Neumann, J. M. Hooker, T. Ritter "Concerted nucleophilic aromatic substitution (CS_NAr) with $^{19}F^-$ and $^{18}F^-$" *Nature* **2016**, *534*, 369–373.

71. G. B. Boursalian, W. S. Ham, A. R. Mazzotti, T. Ritter "Charge transfer directed radical substitution enables *para*-selective C–H functionalization" *Nat. Chem*. **2016**, *8*, 810–815.

70. A. J. Hoover, M. Lazari, H. Ren, M. K. Narayanam, J. M. Murphy, R. M. van Dam, J. M. Hooker, T. Ritter. "A transmetalation reaction enables the synthesis of [^{18}F]5-fluorouracil from [^{18}F]fluoride for human PET imaging" *Organometallics* **2016**, *35*, 1008–1014.

69. J. Boergel, M. G. Campbell, T. Ritter "Transition metal d-orbital splitting diagrams: An updated educational resource for square planar transition metal complexes" *J. Chem. Educ.* **2016**, *93*, 118–121.

68. E. McNeill, T. Ritter "1,4-Functionalization of 1,3-dienes with low-valent iron catalysts" *Acc. Chem. Res.* **2015**, *48*, 2330–2343.

67. E. M. D'Amato, C. N. Neumann, T. Ritter "Selective aromatic C–H hydroxylation enabled by η^6-coordination to Iridium(III)" *Organometallics* **2015**, *34*, 4626–4631.

66. M. G. Campbell, A. G. Hoover, T. Ritter "Transition metal-mediated and metal-catalyzed carbon-fluorine bond formation" *Top. Organomet. Chem.* **2015**, *52*, 1–53.

65. X. Shen, C. N. Neumann, C. Kleinlein, N. Goldberg, T. Ritter "Alkyl aryl ether bond formation with PhenoFluor" *Angew. Chem. Int. Ed.* **2015**, *54*, 5662–5665.

64. H. Shi, D. Babinski, T. Ritter "Modular C–H functionalization cascade of aryl iodides" *J. Am. Chem. Soc*. **2015**, *137,* 3775–3778.

63. C. N. Neumann, T. Ritter “Late-stage fluorination: Fancy novelty or useful tool?” *Angew. Chem. Int. Ed.* **2015**, *54*, 3216–3221.

62. F. Sladojevich, E. McNeill, J. Boergel, S.-L. Zheng, T. Ritter “Condensed-phase, halogen-bonded CF_3I and C_2F_5I Adducts for perfluoroalkylation reactions” *Angew. Chem. Int. Ed.* **2015**, *54*, 3712–3716.

61. T. Fujimoto, T. Ritter “PhenoFluorMix: Practical chemoselective deoxyfluorination of phenols” *Org. Lett.* **2015**, *17*, 544–547.

60. M. Campbell, T. Ritter “Modern carbon-fluorine bond forming reactions for aryl-fluoride synthesis” *Chem. Rev.* **2015**, *115*, 612–633.

59. T. Fujimoto, F. Becker, T. Ritter “PhenoFluor: Practical synthesis, new formulation, and deoxyfluorination of heteroaromatics” *Org. Proc. Res. Develop.* **2014**, *18*, 1041–1044.

58. H. Ren, H.-Y. Wey, M. Strebl, R. Neelamegam, T. Ritter, J. Hooker “Synthesis and imaging validation of [^{18}F]MDL100907 enabled by Ni-mediated fluorination” *ACS Chem. Neurosci.* **2014**, *5*, 611–615.

57. S. Parker, J .Borgel, T. Ritter “1,2-Selective hydrosilylation of conjugated dienes” *J. Am. Chem. Soc.* **2014**, *136*, 4857–4860.

56. M. G. Campbell, T. Ritter “Late-stage fluorination: From fundamentals to application” Org. *Org. Proc. Res. Develop.* **2014**, *18*, 474–480.

55. E. Regalado, M. Kozlowski,J. Curto, T. Ritter, M. Campbell, A. Mazzotti, B. Hamper, C. Spilling, M. Mannino, L. Wan, J.-Q. Yu, J. Liu, C. Welch “Support of academic synthetic chemistry using separation technologies from the pharmaceutical industry” *Org. Biomol. Chem.* **2014**, *12*, 2161–2166.

54. D. C. Powers, T. Ritter “Oxidation of carbon–metal bonds” Comprehensive Organic Synthesis II **2014**, chapter 7.23.

53. T. Liang, T. Ritter “Synthesis of fluorides” Comprehensive Organic Synthesis II **2014**, chapter 6.06.

52. K. P. Kornecki, J. F. Berry, D. C. Powers, T. Ritter “Metal–metal bond-containing complexes as catalysts for C–H functionalization” *Prog. Inorg. Chem.* **2014**, *58*, 223–300

51. J. R. Brandt, E. Lee, G. B. Boursalian, T. Ritter “Mechanism of electrophilic fluorination with Pd(IV): fluoride capture and subsequent oxidative fluoride transfer” *Chem. Sci.* **2014**, 5, 169-179.

50. A. R. Mazzotti, M. G. Campbell, P. Tang, J. M. Murphy, T. Ritter “Palladium(III)-catalyzed fluorination of arylboronic acid derivatives” *J. Am. Chem. Soc.* **2013**, *135*, 14012–14015.

49. M. G. Campbell, S.-L. Zheng, T. Ritter “One-Dimensional Palladium Wires: Influence of Molecular Changes on Supramolecular Structure” *Inorg. Chem*. **2013**, *52*, 13295–13297.

48. G. B. Boursalian, M.-Y. Ngai, K. N. Hojczyk, T. Ritter “Pd-catalyzed aryl C–H imidation with arene as the limiting reagent” *J. Am. Chem. Soc.* **2013**, *135*, 13278–13281.

47. T. Liang, Constanze N. Neumann, T. Ritter “Introduction of fluorine and fluorine-containing functional groups” *Angew. Chem., Int. Ed.* **2013**, *52*, 8214–8264.

46. D. Powers, T. Ritter “A transition state analogue for the oxidation of binuclear palladium(II) to binuclear palladium(III) complexes” *Organometallics* **2013**, *32*, 2042–2045.

45. A. Kamlet, C. Neumann, E. Lee, S. Carlin, C. Moseley, N. Stephenson, J. Hooker, T. Ritter “Application of palladium-mediated ^{18}F-fluorination to PET radiotracer development: overcoming hurdles to translation” *PLOS one* **2013**, *8*, e59187.

44. F. Sladojevich, S. Arlow, P. Tang, T. Ritter “Late-Stage Deoxyfluorination of alcohols with PhenoFluor” *J. Am. Chem. Soc.* **2013**, *135*, 2470–2473.

43. D. C. Powers, T. Ritter “Bimetallic catalysis with palladium” *Science of Synthesis* **2012**, *4*, 1–31.

42. J. Raynaud, J. Y. Wu, T. Ritter “Iron-catalyzed polymerization of isoprene and other 1,3-dienes” *Angew. Chem., Int. Ed.* **2012**, *51*, 11805–11808.

41. E. Lee, J. M. Hooker, T. Ritter “Nickel-mediated oxidative fluorination for PET with aqueous [^{18}F]fluoride” *J. Am. Chem. Soc.* **2012**, *134*, 17456–17458.

40. D. C. Powers, E. Lee, A. Ariafard, M. S. Sanford, B. F. Yates, A. J. Canty, T. Ritter “Connecting Binuclear Pd(III) and Mononuclear Pd(IV) Chemistry by Pd-Pd Bond Cleavage” *J. Am. Chem. Soc.* **2012**, *134*, 12002–12009.

39. D. C. Powers, T. Ritter “ Bimetallic redox synergy in oxidative palladium catalysis” *Acc. Chem. Res*. **2012**, *45*, 840–850.

38. M. G. Campbell, D. C. Powers, J. Raynaud, M. J. Graham, P. Xie, E. Lee, T. Ritter “Synthesis and structure of solution-stable one-dimensional palladium wires” *Nature Chem*. **2011**, *3*, 949–953.

37. E. Lee, A. S. Kamlet, D. C. Powers, C. N. Neumann, G. B. Boursalian, T. Furuya, D. C. Choi, J. M. Hooker, T. Ritter “A fluoride-derived electrophilic late-stage fluorination reagent for PET imaging” *Science* **2011**, *334*, 639–642.

36. C. Huang, T. Liang, S. Harada, E. Lee, T. Ritter “Silver-mediated trifluoromethoxylation of aryl stannanes and arylboronic acids” *J. Am. Chem. Soc.* **2011**, *133*, 13308–13310.

35. P. Tang, W. Wang, T. Ritter “Deoxyfluorination of phenols” *J. Am. Chem. Soc.* **2011**, *133*, 11482-11484.

34. T. Furuya, A. S. Kamlet, T. Ritter “Catalysis for Fluorination and Trifluoromethylation” *Nature*, **2011**, *473*, 470–477.

33. P. Tang, T. Ritter “Silver-mediated fluorination of aryl silanes” *Tetrahedron* **2011**, *67*, 4449–4454.

32. D. C. Powers, T. Ritter “Pd(III) in Synthesis and Catalysis” *Top. Organomet. Chem.* **2011**, *35*, 129–156.

31. G. J. Chuang, W. Wang, E. Lee, T. Ritter “A Dinuclear Palladium Catalyst for α-Hydroxylation of Carbonyls with O_2” *J. Am. Chem. Soc.* **2011**, *133*, 1760–1762.

30. D. C. Powers, D. Y. Xiao, M. A. L. Geibel, T. Ritter “On the Mechanism of Palladium-Catalyzed Aromatic C–H Oxidation” *J. Am. Chem. Soc.* **2010**, *132*, 14530–14536.

29. D. C. Powers, D. Benitez, E. Tkatchouk, W. A. Goddard, III, T. Ritter “Bimetallic Reductive Elimination from Dinuclear Pd(III) Complexes” *J. Am. Chem. Soc.* **2010**, *132*, 14092–14103.
28. J. Y. Wu, B. N. Stanzl, T. Ritter “A Strategy for the Synthesis of Well-Defined Iron Catalysts and Application to Regioselective Diene Hydrosilylation” *J. Am. Chem. Soc.* **2010**, *132*, 13214 –13216.
27. T. Ritter “Catalysis: Fluorination Made Easier” *Nature* **2010**, *466*, 447–448.
26. P. Tang, T. Furuya, T. Ritter “Silver-Catalyzed Late-Stage Fluorination” *J. Am. Chem. Soc.* **2010**, *132*, 12150–12154.
25. T. Furuya, E. M. N. Klein, T. Ritter “C–F Bond Formation for the Synthesis of Aryl Fluorides” *Synthesis* **2010**, 1804–1821.
24. T. Furuya, D. Benitez, E. Tkatchouk, A. E. Strom, P. Tang, W. A. Goddard, III, T. Ritter “Mechanism of C–F Reductive Elimination from Palladium(IV) Fluorides” *J. Am. Chem. Soc.* **2010**, *132*, 3793–3807.
23. D. C. Powers, M. A. L. Geibel, J. E. M. N. Klein, T. Ritter “Bimetallic Palladium Catalysis: Direct Observation of Pd(III)–Pd(III) Intermediates” *J. Am. Chem. Soc.* **2009**, *131*, 17050–17051.
22. J. Y. Wu, B. Moreau, T. Ritter “Iron-Catalyzed 1,4-Hydroboration of 1,3-Dienes” *J. Am. Chem. Soc.* **2009**, *131*, 12915–12917.
21. T. Furuya, T. Ritter “Fluorination of Boronic Acids Mediated by Silver Triflate” *Org. Lett.* **2009**, *11*, 2860–2863.
20. D. P. Powers, T. Ritter “Bimetallic Pd(III) Complexes in Palladium-Catalyzed Carbon–Heteroatom Bond Formation” *Nature Chem*. **2009**, *1*, 302–309.
19. T. Furuya, A. E. Strom, T. Ritter “Silver-Mediated Fluorination of Functionalized Arylstannanes” *J. Am. Chem. Soc.* **2009**, *131*, 1662–1663.
18. B. Moreau, J. Y. Wu, T. Ritter “Iron-Catalyzed 1,4-Addition of Olefins to Dienes” *Org. Lett.* **2009**, *11*, 337–339.
17. T. Furuya, C. Kuttruff, T. Ritter “Carbon–Fluorine Bond Formation” *Curr. Opin. Drug Disc. Dev*. **2008**, *11*, 308–319.
16. T. Furuya, T. Ritter “Carbon–Fluorine Reductive Elimination from a High-Valent Palladium Fluoride” *J. Am. Chem. Soc.* **2008**, *130*, 10060–10061.
15. T. Furuya, H. M. Kaiser, T. Ritter “Palladium-Mediated Fluorination of Arylboronic Acids” *Angew. Chem., Int. Ed.* **2008**, *47*, 5993–5996.

PREVIOUS PUBLICATIONS

14. A. P. Blum, T. Ritter, R. H. Grubbs. “Synthesis of N-heterocyclic Carbene-Containing Metal Complexes from 2-(pentafluorophenyl)-imidazolidines” *Organometallics*, **2007**, *26*, 2122–2124.
13. J. M. Berlin, K. Campbell, T. Ritter, T. W. Funk, A. Chlenov, R. H. Grubbs: “Ruthenium-Catalyzed Ring-Closing Metathesis to Form Tetrasubstituted Olefins” *Org. Lett.* **2007**, *9*, 1339–1342.

12. E. Despagnet-Ayoub, T. Ritter: “N-heterocyclic carbenes as ligands for olefin metathesis catalysts” *Top. Organomet. Chem.* **2007**, *21*, 193–218.

11. T. Ritter, A. Hejl, A. G. Wenzel, T. W. Funk, R. H. Grubbs. “A Standard System of Characterization for Olefin Metathesis Catalysts” *Organometallics* **2006**, *25*, 5740–5745.

10. T. Ritter, M. W. Day, R. H. Grubbs. “Rate Acceleration in Olefin Metathesis through a Fluorine–Ruthenium Interaction” *J. Am. Chem. Soc.* **2006**, *128*, 11768–11769.

9. A. W. Waltman, T. Ritter, R. H. Grubbs. “Rearrangement of N-Heterocylic Carbenes Involving Heterocycle Cleavage” *Organometallics* **2006**, *25*, 4238–4239.

8. T. Ritter, L. Kværnø, M. Werder, H. Hauser, E. M. Carreira. “Heterocyclic Ring Scaffolds as Small-Molecule Cholesterol Absorption Inhibitors” *Org. Biomol. Chem.* **2005**, *3*, 3514–3523.

7. T. Ritter, E. M. Carreira. “1,2,4-Oxadiazolidinones as Configurationally Stable Chiral Building Blocks” *Angew. Chem., Int. Ed.* **2005**, *44*, 936–938.

6. T. Ritter, E. M. Carreira. “C–H Transformation of Terminal Alkynes” in: Handbook of C-H Transformations: Applications in Organic Synthesis, G. Dyker (Ed), Wiley-VCH, **2005**.

5. L. Kværnø, T. Ritter, M. Werder, H. Hauser, E. M. Carreira. “Brush Border Membrane Vesicles as the First In Vitro Assay for Intestinal Cholesterol Absorption Inhibitors” *Angew. Chem., Int. Ed.* **2004**, *43*, 4653–4656.

4. T. Ritter, P. Zarotti, E. M. Carreira. “Diastereoselective Phenol para-Alkylation: Access to a Cross-Conjugated Cyclohexadienone en Route to Resiniferatoxin” *Org. Lett.* **2004**, *6*, 4371–4374.

3. T. Ritter, K. Stanek, I. Larrosa, E. M. Carreira. “Mild Cleavage of Aryl Mesylates: Methanesulfonate as Potent Protecting Group for Phenols” *Org. Lett.* **2004**, *6*, 1513–1514.

2. T. Ritter, E. M. Carreira. “The Diazonamides: The Plot Thickens” *Angew. Chem., Int. Ed.* **2002**, *41*, 2489–2495.

1. B. König, M. Pelka, H. Zieg, T. Ritter, H. Bouas-Laurent, R. Bonneau, J. P. Desvergne. “Photoinduced Electron Transfer in a Phenothiazine-Riboflavin Dyad Assembled by Zinc-Imide Coordination in Water” *J. Am. Chem. Soc*. **1999**, *121*, 1681–1687.

AWARD LECTURES

Erdtman Lecture, Stockholm, Sweden | October 2015

MacLean Lecture, McMaster University, Canada | May 2014

Aldrich Lecture, University of British Columbia, Canada | March 2014

RCS Fluorine Prize Lecture, London | September 2013

BMS Lecture, MIT | April 2013

20th Archer Lecturer, Rensselaer Polytechnic Institute, NY | March 2013

9th Hirata Memorial Lecture, Nagoya University, Japan | January 2013

Klung-Wilhemly-Weberbank Lecture, Berlin, Germany | November 2012

Alphora Research Inc. Lecture, University of Toronto | May 2012

The Padwa Lecture, Columbia University | February 2012

BASF Catalysis Award, BASF, Germany | July 2011

Organic Synthesis Lecturer, University of California, Berkeley | April 2011

Mordecai and Rivka Rubin Lecture, Technion–Israel Institute of Technology | June 2010

Eli Lilly Young Investigator Lecture, University of Wisconsin–Madison | May 2010

Novartis Lecture, Boston University | February 2010

OTHER INVITED LECTURES

2017

Lecture at the UCB Super Network Conference 2017, London, UK | Lecture at the EuCOMC-2017, Amsterdam, NL | Lecture at the Pohang University of Science and Technology, Pohang, South Korea | Lecture at OMCOS-19, Jeju Island, South Korea | Lecture at the Tsinghua University, Beijing Shi, China | Lecture at the University of Nankai, Nankai Qu, China | Lecture at the University of Tianjin, Nankai Qu, China | Lecture at the Junior Faculty Professional Development Workshop, Mainz, Germany | Lecture at the Science Day at CARBOGEN AMCIS AG, Bubendorf, Switzerland | GDCh Lecture at the Technical University Braunschweig, Germany | Lecture at the 253rd ACS National Meeting and Exposition, San Francisco, USA | Lecture at the University of Cambridge, UK | Lecture at the International Symposium Imaging agents in Medicine, University medical Center Groningen, NL | GDCH Ostverband Saar-Lecture, Universität des Saarlandes, Saarbrücken, Germany | Colloquium for Organic Chemistry and Chemical Biology, Phillips University of Marburg, Germany | 50th annual Sheffield Stereochemistry Meeting at the University of Sheffield, UK.

2016

50th annual Sheffield Stereochemistry Meeting at the University of Sheffield, UK | Lecture at Eli Lilly, Windlesham-Erl Wood, UK | Lecture at Vertex Pharmaceuticals, Abingdon-Oxfordshire, UK | Lecture at the UCB - Late Stage Functionalization for Synthesis and Medicines, Oxford, UK | Lecture at the Pierre and Marie Curie University, Paris, France | Plenary Lecture at the 1st ISOTOPICS Project Meeting, Paris, France | Ernst Haage Symposium 2016, MPI CEC, Mülheim an der Ruhr, Germany | MedChem 2016, Annual One-Day Meeting on Medical Chemistry, Mont-Saint-Guilbert, Belgium | Lecture at the 25th International Isotope Society, (UK Group) Symposium University of Cambridge, UK | Lecture at Institute of Chemistry, Karl-Franzens-Universität, Graz, Austria | Lecture at the Ludwig-Maximilian-University, Munich, Germany | Lecture at the University of Lund, Sweden | Lecture at the DTU, Technical University of Denmark, Lyngby, Denmark | Lecture at the Chemistry Department, University of Oslo, Sweden | Lecture at the David Geffen School of Medicine at UCLA, USA | Lecture at the Medicinal Chemistry Department at Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach an der Riss, Germany | Sanofi-Aventis Deutschland GmbH R&D LGCR / Chemistry Frankfurt am Main, Germany | GSK External Lecture, GlaxoSmithKline Medicines Research Centre, Stevenage, UK, August 2016 | EFMC-ISMC 2016 XXIV EFMC, International Symposium on Medicinal Chemistry, Manchester, UK | 57th GECO Conference Basque, France | Institute of Organic Chemistry RWTH

Aachen University, Aachen | ECHC 2016 - XXVII European Colloquium on Heterocyclic Chemistry, Amsterdam, The Netherlands | Actelion Chemistry Lectures, Basel, Switzerland | 19. Steinheimer Gespräche des Fonds für den Hochschullehrernachwuchs, Bad Homburg, Germany | Organic Chemistry Colloquium in SS 2016 Kaiserslautern, Germany | Colloquium Summer Semester, GDCh Ostverband Köln-Leverkusen, Germany | Boehringer-Ingelheim, Ingelheim am Rhein, Germany | GDCh Lecture, University Duisburg-Essen, Germany | Max- Planck-Institute for Chemical Energy Conversion, Mülheim, Germany | Max-Planck-Institute Dortmund, Germany, | PAC Symposium, Leiden, Netherlands | 9th CaRLa Winter School 2016 Lecture, Heidelberg, Germany | Heterocyclic and Synthesis Group of the Royal Society of Chemistry at the Institute of Cancer Research, Chelsea, London, UK

2015

Pacifichem 2015, Honolulu, USA | The Autumn 2015 meeting of the French Chemical Society-Organic Chemistry division, Paris, France | Lecture at the IKCOC-13, Kyoto, Japan | GDCh Lecture, Bochum University, Bochum, Germany | 5th Annual Symposium of Organic Chemistry, Universidad Autónoma de Madrid “UAM” 2015, Madrid, Spain | Erdtman Lecture 2015, Stockholm, Sweden | BASF, Chicago, IL | UCSD, San Diego, CA | Northwestern University, Chicago, IL | University of Michigan | Wane State University, Detroit, MI | Argonne Labs, Argonne, IL | University of Colorado, Boulder, CO | Florida Heterocyclic Conference, Speaker, Gainesville, Florida, USA | ACS Winter Fluorine Conference, Presenter

2014

China/Europe| Nankai University, China | Peking University, China | SIOC | WuXi | Shanghai | Roche Pharmaceuticals, Basel Switzerland | Novartis, Basel Switzerland, | UCB, Brussels, Belgium | Firmenich, Geneva, Switzerland |Philadelphia organic Chemistry Club| ICOM 2015, Fukuoma, Saporo, Hokkaido University, Japan | Gordon research Conference Speaker/Discussion Leader, Salve Regina University, USA | Brock University, St Catherines, Ontario, Canada| McMaster University, Hamilton, Ontario, Canada |University of Southern California | Brock University | University of Utah, Salt Lake city, UT | Swiss Chemical Society, Fribourg Switzerland | Syngenta, Switzerland | Brussels, Belgium | University of British Columbian

2013

Nagoya University, Japan | University of Tokyo, Japan | Rensselaer Polytechnic Institute, Troy, NY | University of Ottawa, Canada | MIT | ACS National Meeting, New Orleans | University of Texas Austin | University of Texas Southwestern Medical Center, Dallas | Stanford | Sloan Kettering, New York | 15th Brazilian Meeting on Organic Synthesis, Sao Paulo

2012

Yale University | University of Oregon | Columbia University, New York | University of California, San Francisco | The Padwa Lecture, Columbia University | Eli Lilly and Company, Indianapolis | ACS National Meeting, San Diego | National RSC Meeting, Warrick, UK | ANORCQ Conference, Caen, France | École Nationale Supérieure de Chemie de Paris, Paris, France | DuPont, Wilmington | GlaxoSmithKline, Research Triangle Park, North Carolina | University of Toronto | ISACS 7, Edinburgh,

UK | Belgian Organic Synthesis | Symposium, Leuven, Belgium | Dreyfus Foundation, New York | Meyers Symposium, Colorado State University | Klung-Wilhemly-Weberbank Lecture, Berlin, Germany | Merck, Rahway

2011

Winter Flourine Conference, St. Pete Beach | Dow Chemicals, Midland | Merck, Boston | Ludwig-Maximilians-Universität, Munich, Germany | Sanofi–Aventis, Frankfurt, Germany | Max Planck Institut für Kohlenforschung, Mülheim, Germany | University of Munster, Germany | Hoffman–La Roche, Nutley | University of North Carolina, Chapel Hill | University of Illinois at Urbana–Champaign | ACS National Meeting, Anaheim | Genentech, South San Francisco | Theravance, South San Francisco | University of California, Berkeley | RSC Organic Symposium, Queen Mary University of London, London, United Kingdom | Oxford University, Oxford, United Kingdom | University of Bristol, Bristol, United Kingdom | GlaxoSmithKline, Stevenage, United Kingdom | Syngenta, Bracknell, Berkshire | University of Minnesota | California Institute of Technology | Annual Graduate Student Symposium, University of Buffalo | High Throughput Chemistry & Chemical Biology Gordon Research Conference | Heterocycles Gordon Research Conference | BASF Catalysis Award, BASF, Germany | Organic Reactions and Processes Gordon Research Conference | Natural Products Gordon Research Conference | Medicinal Chemistry Gordon Research Conference | University of California, Los Angeles, Crump Institute | ACS National Meeting, Denver | Dow Corning, Midland, Michigan | GlaxoSmithKline, Philadelphia | Princeton ACS Meeting, Princeton | Harvard University | Boston College | New Jersey Biotechnology Chemistry Consortium | Northeastern University, Boston | ETH Zürich, Switzerland

2010

University of California, Irvine | University of California, Los Angeles | Boston University, Novartis Lecture | Dartmouth University | Bristol Myers Squibb, Wallingford | Bayer AG, Berlin, Germany | Bayer AG, Wuppertal, Germany | Rheinisch-Westfaelische Technische Hochschule Aachen, Germany | ACS National Meeting, San Francisco | Johnson & Johnson, La Jolla | University of California, San Diego | The Scripps Research Institute | Amgen, San Francisco | University of Wisconsin–Madison, Eli Lilly Young Investigator Lecture | Merck, West Point | Merck, Rahway | Northeastern Regional Meeting, American Chemical Society | Weizmann Institute, Israel | Tel Aviv University | Technion – Israel Institute of Technology, Mordecai and Rivka Rubin Lecture | Pfizer, Groton | ICIQ Summer School, Tarragona | Gordon Research Conference, Stereochemistry | American Chemical Society, National Meeting, Boston | Bayer CropScience | ORGCHEM-Weimar | AstraZeneca, Waltham | University of California, Santa Barbara | Amgen, Thousand Oaks | McGill University, Canada | Pacifichem

2009

University of Puerto Rico | University of Massachusetts, Dartmouth | Sepracor | Bristol-Myers Squibb | NSF workshop on Organic Synthesis and Natural Products Chemistry | Rising Organic Chemists in Catalysis (ROCCAT) | Amgen, Cambridge | Eli Lilly and Company | Abbott Labs | University of Pennsylvania | Princeton University | ETH, Lausanne

2008

Gordon Research Conference: Heterocycles | Dana Farber/Harvard Cancer Center

AWARDED RESEARCH SUPPORT

NIH NIGMS (RO1) | 2015–2017

UCB Pharma | 2013–2017

Phelps Foundation | 2013–2016

Camille Dreyfus Teacher Scholar Award | 2011–2016

NIH NIBIB (RO1) | 2011–2015

NSF Career Award | 2010–2015

Air Force Young Investigator Award | 2010–2013

Eli Lilly Grantee Award | 2010–2012

Roslyn Abramson Award for Excellence in Teaching Undergraduates | 2010

Harvard Catalyst | 2010

AstraZeneca Excellence in Science Award | 2010

Amgen Young Investigator Award | 2010

Alfred P. Sloan Fellowship | 2010

NIH NIGMS (RO1) | 2009–2014

ACS PRF | 2009–2011

Massachusetts Life Science Center | 2009–2011

Smith Family Award for Excellence in Biomedical Research | 2008–2011

Harvard Accelerator Grant | 2008–2010

Harvard University Center for the Environment | 2008–2009

TEACHING EXPERIENCE

RWTH Aachen university | Aachen, Germany

2017–present CHEMISTRY – ORGANIC CHEMISTRY

Harvard University | Cambridge, MA, USA

2006–2010, 2013–2015 CHEMISTRY 30 – ORGANIC CHEMISTRY

Fundamental principles and advanced topics in organic chemistry. Carbonyl chemistry and pericyclic reactions are covered in detail. Students learn about strategies in multi-step organic synthesis and are given an introduction into organometallic chemistry. Laboratory: an introduction to organic chemistry laboratory techniques and experimental organic synthesis. Committee for Undergraduate Education instructor ratings by students (out of 5.0): 4.5 (06-07), 4.8 (07–08), 4.5 (08–09), 4.9 (09–10) 4.3 (13–14).

2010–2013 CHEMISTRY 153 – ORGANOMETALLIC CHEMISTRY

Fundamental principles and advanced topics in organometallic chemistry. Transition metal catalysis and principles thereof are covered in detail, with focus on the organometallic reactivity. Committee for Undergraduate Education instructor ratings by students (out of 5.0): 4.6 (10–11); 4.5 (11–12); 4.6 (12–13).